

X/CE0317/004

Semester:	III	Branch:	CE/CSE/IT
<b>END SEMESTER EXAMINATION – November 2022</b>			
Subject Code:	CF0317	Subject Name:	Database Management System
Date:	13/12/2022	Time:	2.00PM TO 5.00 PM
Day:	Tuesday	Total Marks:	100

**Instructions:**

1. Attempt all questions
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicates full marks

Q.1	A	1. Define DBMS. Explain Database-System Applications.	06
		2. What are the main functions of a database administrator?	04
	B	1. Draw ER diagram for university database consisting four entities Department, Course, Student and instructor. Consider the following constraints: <ul style="list-style-type: none"> <li>▪ A university has many departments.</li> <li>▪ Each department has multiple instructors.</li> <li>▪ An instructor belongs to only one department.</li> <li>▪ Each department offers multiple courses</li> <li>▪ Each course is taught by a single instructor.</li> <li>▪ A student may enroll for many courses offered by different departments.</li> </ul>	06
		2. Explain any two constraints in database with suitable example	04
Q.2	A	1. Explain insert, update and delete anomalies in database with example.	06
		2. What is normalization? Explain 2NF with example.	04
	B	1. Write Relational Algebra syntax for the given queries using the following Database. employee (person_name, street, city) works (person_name, company_name, salary) company (company_name, city)	06



		<p>1) Find the names of all employees who live in city 'Ahmedabad'.</p> <p>2) Find the names of all employees whose salary is greater than 1,00,000.</p> <p>3) Find the names and cities of residence of all employees who work for "First Bank Corporation".</p> <p>4) Find the names, street address, and cities of residence of all employees who work for "First Bank Corporation" and earn more than 10,000.</p>	
		<p>2. Consider the relation <math>R = \{A, B, C, D, E\}</math> and the set of functional dependencies <math>F = \{A \rightarrow BC, CD \rightarrow E, B \rightarrow D, E \rightarrow A\}</math>. Find the candidate keys for R. (Atleast four in case of many)</p>	04
Q.3	A	1. What is a transaction? Explain the ACID properties.	06
		2. What are the problems of concurrent transactions? Explain any one problem with example.	04
	B	1. What is system recovery? Explain log-based recovery.	06
		2. Explain two phase commit protocol.	04
Q.4	A	1. Explain DDL, DML and DCL with example.	06
		2. Explain any two date and string functions of SQL with example.	04
	B	<p>1. We have following relations:</p> <p>EMP(empno, ename, jobtitle, hiredate, salary, deptno)</p> <p>DEPT(deptno, deptname, loc)</p> <p>Answer the following queries in SQL.</p> <p>1) Find all the employee whose empno is less than 100 and salary more than 25000.</p> <p>2) Display empno, ename, deptno and deptname.</p> <p>3) Delete the employee having minimum salary.</p>	06
		2. What is ON DELETE CASCADE in SQL? Explain with example.	04
Q.5		<b>Any Four (05*4=20)</b>	20
	A	Explain conflict serializability with example.	05
	B	Define Locking. Explain two phase locking protocol.	05
	C	What is deadlock? Explain deadlock detection mechanism.	05
	D	When Join is used in SQL? Explain Natural join and Full Outer join with SQL syntax.	05
	E	What is the view? Differentiate between view and table. Give the advantages of view.	05
	F	Explain cursor and its types.	05